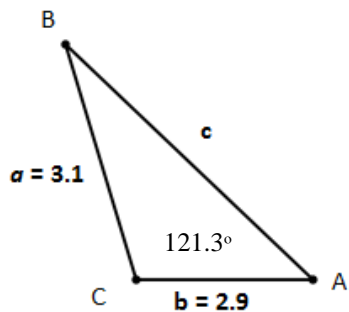


## 7.2 Law of Cosines &amp; Area of Triangles

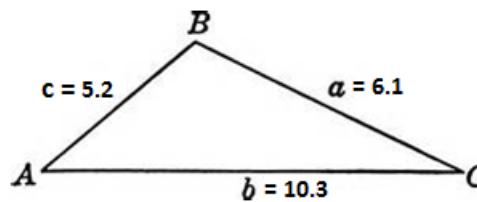
Name \_\_\_\_\_ Date \_\_\_\_\_ Period \_\_\_\_\_

Solve each triangle. Round to the nearest tenth.

1.



2.



Solve each triangle with the given information. Round to the nearest tenth.

3.  $a = 6.8, c = 2.4, \beta = 10.5^\circ$

4.  $a = 18.5, b = 12.2, c = 8.1$

5.  $a = 10.3, c = 8.4, \beta = 88^\circ$

6.  $a = 6.3, b = 7.1, c = 6.8$

7.  $a = 7.2, \beta = 25^\circ, \gamma = 35^\circ$

**Determine the number of triangles with the given parts.**

8.  $a = 3, b = 4, c = 7$

9.  $a = 5, b = 6, c = 9$

**Find the area of each triangle with the given parts. Round to the nearest tenth.**

10.  $a = 12.9, b = 6.4, \gamma = 13.7^\circ$

11.  $\alpha = 42.3^\circ, \beta = 62.1^\circ, c = 14.7$

12.  $\alpha = 56.3^\circ, \beta = 41.2^\circ, a = 9.8$

13.  $\gamma = 74.3^\circ, \beta = 25.6^\circ, b = 17.3$

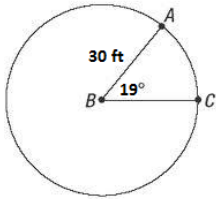
**Find the area of each triangle using Heron's formula. Round to the nearest tenth.**

14.  $a = 16, b = 9, c = 10$

15.  $a = 5.4, b = 8.2, c = 12.0$

**Solve each problem. Draw diagrams if necessary. Show work!**

16. What is the length of a chord AC intercepted by a central angle of  $19^\circ$  in a circle of radius 30 feet? Round to the nearest hundredth of a foot. (Find AC)



17. A triangular piece of glass has sides of lengths 13 in., 18 in., and 9 in. Find the area of the triangle without using Heron's formula. Round to the nearest tenth.

18. An airplane leaves an airport and flies due west 150 miles and then 230 miles in the direction S  $39.67^\circ$  W. How far is the airport from the plane's final destination?

19. A ship travels 98 km on a bearing of  $38^\circ$  and then travels on a bearing of  $128^\circ$  for 169 km. Find the distance from the starting point to the end of the trip.

20. To find the distance between two small towns, Moroni and Wales, an electronic distance measuring (EDM) instrument is placed on a hill from which both towns are visible. The EDM measured the distance to Moroni as 4.1 miles and the distance to Wales at 4.5 miles. The angle between the two lines of sight is  $37^\circ$ . What is the distance between the two towns?

21. A parallelogram has sides of lengths 36.4 cm and 21.5 cm. If the longer diagonal has a length of 38.9 cm, what is the measure of the angle opposite this diagonal?

Find all of the real zeros of the function, finding exact values whenever possible. Identify each zero as rational or irrational.

22.  $f(x) = 2x^3 - 3x^2 - 4x + 6$

23.  $f(x) = x^2 - 36$

24.  $f(x) = -(x - 2)^3(x + 1)$

Zeros	Multiplicity	Touch/Cross

$\lim_{x \rightarrow \infty} f(x) =$

$\lim_{x \rightarrow -\infty} f(x) =$

